

REMARKS

To further prosecution of the present application, Applicants have amended herein Claim 50. The amendments to Claim 50 do not add new subject matter and have antecedent basis in the application specification. Claims 50 and 52-69 are currently pending. Applicants respectfully request reconsideration.

Rejection of Claims 50 and 52-69 Pursuant 35 U.S.C. § 112

The Examiner indicates in the Office Action that Claims 50 and 52-69 are rejected pursuant 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly out and distinctly claim the subject matter of the invention.

In particular, the Examiner indicates that it is unclear whether the film forming binder solution of Claim 50 is part of the final article or whether it is simply used, along with the superabsorbent polymer precursor solution, to form the coating on said article. In addition, the Examiner indicates Claim 50 recites the superabsorbent polymer precursor solution as being part of said coating and asks if the superabsorbent polymer precursor solution is part of the final article as a component of the coating or is used to form the coating on the surface of the article.

Applicant respectfully submits that Claim 50 has been amended herein to clearly recite that the superabsorbent polyacrylate polymer precursor in aqueous solution and the film-forming binder are components of a substantially homogenous coating mixture that is applied to at least one surface of the article and, when cured, forms a superabsorbent polymer coating. Based upon the claim amendments, Applicant respectfully submits that Claim 50 definitely and distinctly recites the subject matter of the invention and respectfully requests withdrawal of the rejection of Claim 50 and dependent Claims 52-69 pursuant 35 U.S.C. § 112, second paragraph, in view of such amendments.

Rejection of Claims 50 and 52-69 Pursuant 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a)

Claims 50 and 52-69 have been rejected pursuant 35 U.S.C. § 102(b) as being anticipated by Japanese Patent No. JP 4284236 issued to Kono et al. (hereinafter “Kono”) or U.S. 4,810,576 issued to Gaa et al. (hereinafter “Gaa”) or U.S. 5,236,982 issued to Cossement et al. (hereinafter “Cossement”).

Alternatively, Claims 50 and 52-69 have been rejected pursuant 35 U.S.C. § 103(a) as being unpatentable over Kono, Gaa or Cossement.

Applicants respectfully traverse all rejections of Claims 50 and 52-69 as being anticipated by or as being unpatentable over Kono, Gaa or Cossement for the reasons set forth below.

Claim 50 has been amended herein and is directed to an article at least partially coated comprising: at least one surface of said article at least partially coated with a superabsorbent water-resistant polyacrylate polymer coating formed from a substantially homogenous coating mixture comprising: (i) at least one water-soluble superabsorbent polyacrylate polymer precursor in aqueous solution; (ii) a non-particulate viscosity-modifying agent provided in the form of a solution or dispersion; (iii) a lubricant; and (iv) a film forming binder in aqueous solution, said film forming binder selected from the group consisting of polyesters, polyurethanes, epoxies, latex and mixtures thereof, wherein, when applied to said at least one surface and cured, the coating mixture forms said superabsorbent, water-resistant polyacrylate polymer coating. Said superabsorbent, water-resistant polyacrylate polymer coating absorbing water when it is wetted and desorbing water when it is dried without loss of polyacrylate polymer.

Kono - Rejection of Claims 50 and 52-69 Pursuant 35 U.S.C. § 102(b)

In previous Office Actions, the Examiner indicated that Kono teaches articles comprising coating layers on at least one surface comprising a water-absorbent polymer and a binder. In addition, the Examiner indicated that while Kono does not expressly teach the claimed water-absorbing properties of the claimed coating, it is reasonable that the prior art coatings possess the claimed properties because the compositions are essentially the same as the claimed composition. Therefore, the Examiner concludes that the basis for the rejection of Claim 50 pursuant to 35 U.S.C. § 102(b) has been met. Applicants respectfully disagree.

As the Examiner knows, a single prior art reference anticipates a claimed invention in accordance with § 102(b) if the prior art reference teaches each and every element of the claimed invention. Claim 50 is directed to an article at least partially coated comprising at least one surface of said article at least partially coated with a

superabsorbent water-resistant polyacrylate polymer coating formed from *a substantially homogeneous coating mixture comprising: at least one water-soluble superabsorbent polyacrylate polymer precursor in aqueous solution, a non-particulate viscosity-modifying agent provided in the form of a solution or dispersion*, a lubricant, and a film forming binder in aqueous solution. Applicants respectfully submit that Kono does not disclose or suggest at least *a substantially homogeneous coating mixture comprising a water-soluble superabsorbent polyacrylate polymer precursor in aqueous solution and a non-particulate viscosity-modifying agent provided in the form of a solution or dispersion*. In addition, Applicants respectfully submit that because Kono does not disclose or suggest the claimed coating mixture and the claimed superabsorbent polymer coating that results from such coating mixture, Kono does not disclose or suggest the claimed water-absorbing properties of the resulting polymer coating.

Rather, in contrast to Claim 50, Kono discloses a water absorbing resin layer (3) disposed on a composition layer (2) that is formed on a substrate (1) to secure the water absorbing resin layer (3) to the substrate. The composition layer (2) is a synthetic resin film, a synthetic fiber fabric, a non-woven sheet or the like that is bonded to the substrate (1). The composition layer (2) includes a binder (4) to secure the water absorbing resin layer (3) to its other surface and to prevent the water absorbing resin layer (3) from peeling off the substrate (1). The composition layer (2) thereby ensures the water absorbing resin layer (3) remains on the substrate (1). The water absorbing resin layer (3) of Kono is a relatively fragile polymer resin layer or film that when applied to a substrate and dried would pop-off the substrate (1) without means to secure or bind the resin layer (3) to the substrate (1). The composition layer (2) helps to ensure that the polymer resin layer (3) remains adhered to the substrate (1) while exposing the resin layer (3) for water absorption.

Neither the water absorbing polymer resin layer (3) nor the composition layer (2) of Kono is formed from a substantially homogeneous coating mixture and, in particular, formed from a composition of at least a water-soluble superabsorbent polyacrylate polymer precursor in aqueous solution and a non-particulate viscosity-modifying agent provided in the form of a solution or dispersion.

The invention of the present application is directed to overcoming the problems associated with using dry, powdered or granulated (and often water-insoluble) water-absorbing polymers and particulate viscosity modifiers in coating formulations for water-resistant polymer coatings. The invention seeks to overcome these problems by employing a substantially homogeneous coating mixture, comprising an aqueous solution of a water-soluble superabsorbent polyacrylate polymer precursor and a non-particulate viscosity modifying agent provided in the form of a solution or dispersion, to form a superabsorbent water-resistant polyacrylate polymer coating when such mixture is applied to a surface of an article.

More specifically, the invention seeks to improve the surface performance characteristics of coating mixtures when applied to surfaces that are affected by such ingredients as granular water-absorbing polymers and particulate viscosity modifiers. In addition, the invention seeks to improve the water-absorbing performance of the resulting polymer coatings. Polymer coatings formed from compositions including dry, powdered or granulated water absorbing agents demonstrate limited water-absorbing performance in terms of swelling ability and swell rate. (See page 3, lines 15-30 of the application specification). In addition, the viscosity of coating compositions has been traditionally modified by adding dry, particulate viscosity modifying agents which results in compositions that are not homogeneous. Due to the presence of particulate material, such compositions are difficult to handle during coating applications. In addition, surface performance characteristics of such compositions are compromised during applications with respect to flowing ability and spreadability that affect the thickness and uniformity of the resulting polymer coating. (See page 4, lines 13-22 of the application specification). Because such coating compositions comprising dry, powdered water-absorbing agents and particulate viscosity modifiers are not substantially homogeneous, the compositions may not have sufficient flowing ability and spreadability to uniformly coat a surface or to achieve a desired coating thickness, such as, for instance, with a single pass through an coating application process or apparatus. In addition, the resulting polymer coatings may not achieve relatively uniform water-absorbing properties or sufficient swell ability and swell rate along coated surfaces to provide adequate water resistant and protection. Further, such coating compositions may not avoid or prevent

clogging of coating equipment. (See page 4, lines 13-18 of the application specification).

As indicated in the application specification, the invention is directed to overcoming such problems by using a superabsorbent, water-resistant polyacrylate polymer precursor in aqueous solution and a viscosity-modifying agent in the form of a solution or dispersion seeks to provide a coating mixture that is substantially homogeneous and thereby has sufficient flowing ability and spreadability when applied to a surface to form a relatively uniform water-resistant polymer coating with a desired thickness that demonstrates improved water-absorbing performance in terms of swell ability and swell rate relative to prior art coatings that are formed from dry, powdered or particulate water-absorbents and viscosity modifiers. The improved water-absorbing performance of the resulting water-resistant polymer coating according to the invention includes the claimed properties of absorbing water when the polymer coating is wetted and desorbing water when it is dried without loss of polymer. (See page 7, lines 18-22 of the application specification).

Applicant respectfully submits that because Kono does not disclose or suggest the water-absorbing resin layer is formed from *a substantially homogeneous coating mixture comprising at least one water-soluble superabsorbent polyacrylate polymer precursor in aqueous solution and a non-particulate viscosity-modifying agent provided in the form of a solution or dispersion*, Kono does not disclose or suggest the water absorbing properties of the resulting polymer coating of the claimed article.

In response to Applicants' previous arguments, the Examiner indicated that even though product-by-process claims are limited and defined by the process, a determination of the patentability of the claimed invention is based on the product itself and the patentability of the product does not depend on its method of production. If the product of the product-by-process claim is the same or obvious from a product of the prior art, the claim is unpatentable even though the prior art product is made by a different process. The Examiner further indicates that even though the cited prior art may not expressly teach the disclosed properties of the claimed coating, it is reasonable that the prior art coatings would possess the presently claimed properties since the coating compositions are essentially the same as the claimed composition.

As discussed above, Applicants respectfully submit that the coated article of Claim 50 includes a superabsorbent water-resistant polyacrylate polymer coating that is different from the coating and coated article Kono discloses or suggests because the polymer coating is formed from a substantially homogeneous coating mixture that includes compounds Kono does not disclose or suggest. In particular, Kono does not disclose or suggest a non-particulate viscosity modifier in the form of a solution or dispersion. Applicants therefore respectfully disagree with the Examiner's conclusion that the claimed coating is the same coating or an obvious variant of the coating of Kono. By virtue of at least the water-soluble superabsorbent polyacrylate polymer precursor in aqueous solution and the non-particulate viscosity-modifying agent provided in the form of a solution or dispersion that make up the substantially homogeneous coating mixture, the claimed coating mixture and the claimed water-resistant polyacrylate polymer coating that results therefrom are different from the coating compositions and polymer coatings of Kono.

In addition, Kono does not disclose or suggest the problems associated with using dry, powdered water-absorbing polymers and particulate viscosity modifiers in coating compositions that the present invention seeks to overcome that would suggest that either the water absorbing resin layer or the composition layer is formed from coating compositions that are the same or an obvious variant of the claimed coating mixture.

Furthermore, Kono discloses the water absorbing composition is soluble in an organic solvent which suggests that the disclosed polymer resin is not water-soluble nor a non-particulate polymer resin.

For these reasons, Applicants respectfully submit it is not reasonable the coating Kono discloses or suggests would achieve the claimed water-absorbing properties of the resulting superabsorbent polyacrylate polymer coating because Kono does not disclose or suggest using a polymer precursor in aqueous solution and a non-particulate viscosity modifier in the form of a solution or dispersion, ingredients that affect the surface performance characteristics of the coating mixture and thereby the resulting water-absorbing properties of the water-resistant polymer coating formed therefrom.

In addition, the application specification discloses results of comparisons of polymer compositions and coatings according to the present invention with prior art

coating compositions and coatings formed therefrom to demonstrate the relative improvement of water-absorbing properties of the claimed polyacrylate polymer coating. Applicants respectfully direct the Examiner's attention to Tables 1 and 2 on page 13 of the application specification which report results of water resistance testing that compares articles coated with the claimed polymer coating with articles coated with sample comparison coatings. Comparison samples include dry water-blocking coatings formed with granulated polymer powders. (See pages 15-19 of the application specification.) The reported results indicate that the substantially homogeneous coating mixture including the aqueous solution of polymer precursor and the non-particulate viscosity modifier provided in the form of a solution or dispersion are critical to the performance of the resulting superabsorbent polyacrylate polymer coating.

The Examiner's conclusion with respect to the claimed water-absorbing properties of the claimed water-resistant polymer coating suggests that the Examiner considers Kono is either implicitly or inherently anticipatory of the claimed coating and the claimed water-absorbing properties. "To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently." *In re Schreiber*, 44 USPQ2d 1429 (Fed.Cir. 1997). "[A]nticipation by inherent disclosure is appropriate only when the reference discloses prior art that must *necessarily* include the unstated limitations ..." *Transclean Corp. v. Bridgewood Services, Inc.*, 62 USPQ2d 1865 (Fed.Cir. 2002)(emphasis in original). "An anticipating reference must describe the patented subject matter with sufficient clarity and detail to establish that the subject matter existed in the prior art and that such existence would be recognized by persons of ordinary skill in the field of the invention. See *In re Spada*, 15 USPQ2d 1655, 1657 (Fed.Cir. 1990); *Diversitech Corp. v. Century Steps, Inc.*, 850 F2d 675, 678 (Fed.Cir. 1988).

Applicants respectfully submit that because Kono does not disclose or suggest the claimed polymer coating nor the claimed substantially homogeneous coating mixture from which such coating is formed, Kono therefore does not disclose prior art that would *necessarily* include unstated limitations, such as the claimed water-absorbing properties. Further, Applicants respectfully submit that the Kono disclosure does not provide

sufficient detail to establish that the claimed subject matter existed in the prior art and that it would have been recognized by those having ordinary skill in the art.

Thus, Applicants respectfully submit that Kono does not disclose each and every element of the invention of Claim 50 as required pursuant 35 U.S.C. § 102(b) to establish *prima facie* anticipation of the claimed coated article. Applicants respectfully submit that Claim 50 is patentably distinct from Kono and respectfully request withdrawal of the rejection of Claim 50 pursuant 35 U.S.C. § 102(b).

Claims 52-69 depend from Claim 50 and are patentable for at least the same reasons given above. The rejection of Claims 52-69 pursuant 35 U.S.C. § 102(b) therefore should be withdrawn.

Cossement - Rejection Claims 50 and 52-69 Pursuant 35 U.S.C. § 102(b)

With respect to Cossement, the Examiner indicates in the Action that Cossement teaches fiber reinforcing material comprising coating or sizing compositions that comprise an aqueous solution of a base neutralized polyacrylate and polymeric or binder agents for coating fibrous substrates, along with other conventional compounds known to be useful in aqueous coating compositions. The Examiner further indicates that Cossement does not expressly teach the disclosed properties of the claimed coating; however, it is reasonable that the coating of Cossement would possess the claimed properties because the compositions are essentially the same. The Examiner therefore concludes that the sizing compositions of Cossement anticipate the claimed coating.

Applicants respectfully disagree that Cossement discloses the properties of the invention of Claim 50 and that the claimed coating comprises a composition that is essentially the same as that disclosed by Cossement.

Applicants respectfully submit that Cossement does not disclose each and every element of the invention of Claim 50 as required pursuant 35 U.S.C. § 102(b). For reasons similar to those given above with respect to Kono, in contrast to Claim 50, Cossement does not disclose or suggest at least a surface of said article at least partially coated with *a substantially homogeneous coating mixture comprising at least one water-soluble superabsorbent polyacrylate polymer precursor in aqueous solution and a non-particulate viscosity-modifying agent provided in the form of a solution or dispersion.*

In addition, because Cossement does not disclose or suggest the same coating mixture, as the Examiner indicates, Cossement therefore does not implicitly or inherently disclose or suggest the claimed water-absorbing properties of the superabsorbent water-resistant polyacrylate polymer coating that is formed from the claimed coating mixture.

Rather, Cossement discloses a glass sizing composition that is applied to glass fibers as a pretreatment before such glass fibers are chopped and added to processes to form thermoplastic materials, such as nylons. The chopped, sized glass fibers are added to processes to form such thermoplastic materials in order to strengthen and to stiffen the resulting composite formed therefrom. The sizing composition includes an aqueous emulsion of blocked polyurethane resins, such as aqueous solutions of polyurethane polymers formed by reacting isocyanate or polyisocyanate with a polyhydroxylated compound or a hydroxyl terminated polyether or polyester. The sizing composition further includes an acrylic acid monomer and one or more organo-silane coupling agents. In particular, when the organo-silane coupling agent is reacted with a polyurethane polymer, the resulting composition is not water absorbent. More importantly, the structural integrity and the performance characteristics of the nylon composites reinforced with glass fibers sized with the composition of Cossement would be compromised as a result of water absorption by the glass fiber sizing.

Applicants respectfully submit that Cossement does not disclose or suggest the substantially homogeneous coating mixture including a water-soluble superabsorbent polyacrylate polymer precursor in aqueous solution and a non-particular viscosity modifier provided in the form of a solution or dispersion from which the claimed superabsorbent water-resistant polyacrylate polymer coating of said article is formed. Applicants therefore respectfully submit the sizing composition of Cossement is not the same composition as the claimed polyacrylate polymer coating.

In addition, Applicants respectfully submit that because the sizing composition of Cossement is different from the claimed homogeneous coating mixture and the resulting coatings of Cossement are thereby different from the claimed water-resistant polyacrylate polymer coating of said article, Cossement does not disclose or suggest the claimed water-absorbing properties of the coating. As discussed above with respect to Kono, the Examiner's conclusion suggests the Examiner considers Cossement to implicitly or

inherently disclose the claimed coating of said article and therefore the claimed water-absorbing properties of the coating. Applicant's submit that because Cossement does not disclose or suggest the substantially homogeneous coating mixture and certain compounds thereof, namely, the claimed aqueous solution of water-soluble polyacrylate polymer precursor and non-particulate viscosity modifier, the claimed polymer coating and the sizing compositions are not the same and therefore Cossement does not implicitly or inherently disclose or suggest the claimed water-absorbing properties. In other words, the sizing compositions and the resulting coatings Cossement discloses do not *necessarily* include the claimed limitations even if such limitations are not explicitly disclosed because the compositions and resulting coatings are not essentially the same compositions, as the Examiner asserts, and therefore do not possess the same properties.

Furthermore, any water-absorbing polyacrylate polymers of the sizing compositions of Cossement and the coatings formed therefrom would be detrimental to the thermoplastic composite materials that are reinforced with the glass fibers treated with such sizing compositions. In particular, using an organo-silane coupling agent to react with a polyurethane polymer produces a chemical structure that is not conducive to water-absorption.

Thus, Applicants respectfully submit that Cossement does not disclose each and every element of Claim 50 as required to establish *prima facie* anticipation pursuant 35 U.S.C. § 102(b), and respectfully submit that Claim 50 is patentably distinct from Cossement. Accordingly, the rejection of Claim 50 pursuant 35 U.S.C. § 102(b) should be withdrawn.

Claims 52-69 depend from Claim 50 and are patentable for at least the same reasons given above. The rejection of Claims 52-69 pursuant to 35 U.S.C. § 102(b) therefore should be withdrawn.

Gaa - Rejection of Claims 50 and 52-69 Pursuant 35 U.S.C. § 102(b)

With respect to Gaa, the Examiner indicates in the Office Action that Gaa teaches fiber reinforcing material comprising coating or sizing compositions that comprise an aqueous solution of a base neutralized polyacrylate and polymeric or binder agents for coating fibrous substrates. The Examiner further indicates that Gaa does not expressly teach the claimed water-absorbing properties of the claimed water-resistant superabsorbent polymer coating of said article; however, it is reasonable that the coatings of Gaa would possess the claimed water-absorbing properties because the coating compositions are essentially the same. The Examiner therefore concludes that the sizing compositions of Gaa anticipate the claimed coating of said article.

For reasons similar to those given above with respect to Kono and Cossement, Applicants respectfully disagree that the sizing compositions and coatings Gaa discloses or suggests are essentially the same as the coating mixture and the polymer coating of Claim 50; therefore, Applicants further disagree Gaa discloses or suggests the claimed water-absorbing properties.

More specifically, Applicants respectfully submit that Gaa does not disclose each and every element of the invention of Claim 50 as required pursuant 35 U.S.C. § 102(b). In contrast to Claim 50, Gaa does not disclose at least *the substantially homogeneous coating mixture including a water-soluble superabsorbent polyacrylate polymer precursor and a non-particulate viscosity modifying agent provided in the form of a solution or dispersion*. Rather, Gaa discloses treated or sized glass fibers for use in specialty, synthetic, fiberboard, pulp and composite papers, including glass fiber paper as an alternative to asbestos fiber materials. In addition the treated or sized glass fibers of Gaa are used to form mats and fabrics of reinforcing polymers, including nonwoven mats used as roofing shingles or in built-up roofing systems. The treated or sized glass fibers are dispersed in a chemical dispersion and then dried to form nonwoven mats. The sizing composition includes, *inter alia*, a water-soluble polymer such as a polyacrylate resin neutralized with a base. However, Gaa does not disclose use of a non-particulate viscosity modifier provided in the form of a solution or dispersion in combination with an aqueous solution of a water-soluble polyacrylate polymer precursor. Therefore, the

claimed water-resistant polyacrylate polymer coating of Claim 50 is different from the sizing compositions of Gaa used to treat or size glass fibers.

As discussed above with respect to Kono and Cossement, because the claimed polymer coating of said article is different from the sizing compositions of Gaa, Gaa does not disclose or suggest prior art subject matter that necessarily includes unstated properties of the disclosed sizing coating with respect to the water-absorbing properties of the claimed water-resistant polyacrylate polymer coating.

In addition, the claimed water-absorbing properties are not required in the reinforced end products formed with glass fibers sized with the compositions of Gaa or in the applications in which such reinforced products are used. In fact, water absorbing properties of the reinforced end products to which the sizing compositions of Gaa are directed would be highly undesirable, particularly for glass fiber reinforced paper and glass fiber reinforced roofing shingles and other roofing materials systems. In these applications, the glass fiber sizing exhibiting water-absorption properties would be disastrous, significantly compromising the structure of the roofing shingles and other glass fiber reinforced materials.

As discussed above with respect to Kono and Cossement, the Examiner's concludes Gaa discloses the same composition as the claimed polymer coating and therefore discloses implicitly or inherently the claimed water-absorbing properties. The polyacrylate resins Gaa discloses cannot be construed to provide water absorbing properties for at least the reasons that the end products incorporating glass fibers sized with the Gaa compositions would be materially compromised. Therefore, the aqueous solution of neutralized polyacrylate that Gaa discloses does not *necessarily* demonstrate the claimed water-absorbing properties.

Thus, Claim 50 is patentably distinct from Gaa. The rejection of Claim 50 pursuant to 35 U.S.C. § 102(b) should be withdrawn.

Claims 52-69 depend from Claim 50 and are patentable for at least the same reasons given above. The rejection of Claims 52-69 pursuant to 35 U.S.C. § 102(b) therefore should be withdrawn.

Kono, Cossement or Gaa - Rejection of Claims 50 & 52-69 Pursuant 35 U.S.C. § 103(a)

Alternatively, the Examiner has indicated that Claim 50 is unpatentable over Kono, Cossement or Gaa. The Examiner has indicated that each of Kono, Cossement or Gaa discloses fiber reinforcing materials coated with coating or sizing compositions comprising an aqueous solution of a base neutralized polyacrylate and polymeric or binder agents. The Examiner has further indicated that Kono, Cossement or Gaa do not expressly disclose the claimed superabsorbent properties of the polyacrylate polymer coating of Claim 50; however, the Examiner has concluded that it is reasonable the coatings Kono, Cossement or Gaa disclose would possess the claimed superabsorbent properties because the compositions of Kono, Cossement or Gaa are essentially the same as the claimed composition. The Examiner has indicated that it would have been obvious to one having ordinary skill in the art at the time the invention was made to arrive at the claimed composition because the claimed composition appears within the generic disclosure of the prior art.

Applicants respectfully disagree and respectfully submit that the superabsorbent polyacrylate polymer coating of Claim 50 is not essentially the same as the layers, sizings or coatings that Kono, Cossement or Gaa disclose for the reasons given above with respect to the rejections of Claim 50 pursuant 35 U.S.C. § 102(b). Applicants further submit that none of the cited reference provides a teaching, suggestion or motivation for modification of the disclosed layers, sizings and coatings to include the claimed substantially homogeneous coating mixture and, in particular, use of a non-particulate viscosity modifier provided in the form of a solution or dispersion. As a result, the prior art compositions and the layers, sizings and coating formed therefrom do not teach or suggest the claimed superabsorbent properties of the coating of Claim 50.

In accordance with 35 U.S.C. § 103(a), a claimed invention is considered obvious if a prior art reference, or a combination of prior art references, teaches or suggests all of the limitations of the claimed invention. In addition, obviousness of the claimed invention is established where there is a teaching, suggestion or motivation, either in the prior art references themselves or in the knowledge generally known to those of ordinary skill in the art, to combine the teachings or to modify the teachings of the prior art to achieve the claimed invention. Further, a reasonable expectation of success must exist

that the claimed invention will be achieved by combining or modifying the prior art teachings. These three requirements must be met in order to establish a *prima facie* case of obviousness. MPEP 2143.

Applicants respectfully submit that each of the cited prior art references does not meet the requirements noted above to establish *prima facie* obviousness and, in particular, does not provide any teachings or suggestions that would motivate one of ordinary skill in the art to modify the disclosed compositions and the coatings that result therefrom to include *all* of the limitations of Claim 50.

Thus, Applicant respectfully submits Claim 50 is not obvious from the cited prior art and therefore is patentable over Kono, Cossement and Gaa. Accordingly, Applicants respectfully request withdrawal of the rejection of Claim 50 pursuant 35 U.S.C. § 103(a).

Claims 52-69 depend from Claim 50 and are patentable for at least the same reasons given above. The rejection of Claims 52-50 pursuant 35 U.S.C. § 103(a) therefore should be withdrawn.

Rejection of Claims 50 and 52-69 Pursuant 35 U.S.C. § 103(a)

Claims 50 and 52-69 are rejected pursuant 35 U.S.C. § 103(a) as being unpatentable over U.S. 4,913,517 issued to Arroyo et al. (“Arroyo”) or over U.S. 5,264,251 issued to Geursen et al. (“Geursen”) in combination with U.S. 4,466,151 issued to Barch et al. (“Barch”).

The Examiner indicated in the previous Office Actions that Claim 50 is directed to a product and not the process of preparing the product; therefore, the products formed by the sizings and coatings disclosed in the cited prior art references render the invention of Claim 50 obvious. Applicants respectfully disagree.

For at least the same reasons given above with respect to Kono, Cossement and Gaa, Applicants respectfully submit that the claimed superabsorbent water-resistant polyacrylate polymer coating is not the same coatings achieved with the teachings of Arroyo or Guersen and Barch because the claimed substantially homogeneous coating mixture is different than the coating compositions and sizings disclosed in the cited prior art, and as a result, the polymer coatings achieve are not the same, as the Examiner indicates. In particular, none of the cited prior art references provides a teaching or

suggestion of a non-particulate viscosity modifier provided in the form of a solution or dispersion, which affects the resulting nature of the claimed polymer coating and seeks to overcome problems associated with prior art coating compositions discussed above.

Guersen discloses superabsorbent coatings for yarns to provide water-absorbing properties to strength members used in cables that include using superabsorbents that can be processed into stable water-in-oil emulsions by polymerizing such superabsorbents and dispersing the superabsorbents in an emulsion to obtain a liquid coating. In addition, with respect to Barch, such reference does not teach or suggest protective coatings to achieve water-resistant, but, rather, sizing treatments on surfaces of yarns or glass fibers to prevent abrasion or to increase surface tension. Further, Arroyo does not provide sufficient disclosure of the superabsorbent compositions applied to strength members that would allow the Examiner to conclude the coatings Arroyo achieves are the same.

Arroyo is directed to a cable that includes a water-blockable strength member including a plurality of fibrous members comprising Kevlar® yarn treated with a water swellable liquid superabsorbent material. The superabsorbent material may include homopolymers and copolymers of acrylic acids or acrylate esters, and polyacrylic acid and polyacrylonitrile based superabsorbents.

Guersen is directed to an aramid yarn coating with a superabsorbent coating composition of a water-in-oil emulsion including a water-soluble superabsorbent polymer monomer polymerized in the aqueous phase of such emulsion. As a result, a liquid product is obtained that contains a highly concentrated superabsorbent while the liquid's viscosity remains low. The continuous oil phase of the emulsion comprises liquids that are immiscible or poorly miscible with water. Barch discloses an applicator for coating compositions wherein the applicator is comprised of glass fibers that are chemically treated or sized to prevent abrasion and to achieve a desired surface tension between the fibers and a coating composition to be applied. The chemical treatment or sizing composition includes a solution, emulsion, dispersion or mixture having at least a carrier, such as an organic solvent or water; a film forming polymer, such as aqueous solutions or emulsions of cellulosic materials or thermoplastic and thermosetting polymer materials; and a coupling agent.

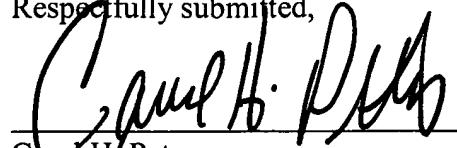
However, Arroyo and the combination of Guersen and Barch do not disclose or suggest the claimed substantially homogeneous coating mixture of Claim 50 and the claimed water-resistant polyacrylate coating resulting therefrom. In particular, the cited prior art references do not disclose or suggest the combination of an aqueous solution of a superabsorbent polyacrylate polymer precursor and a non-particulate viscosity modifying agent in the form of a solution or dispersion. Therefore, none of the references would provide teachings or suggestions that would motivate one of ordinary skill in the art to modify the prior art coating or sizing compositions to include at least the above-noted combination. In particular, Arroyo does not provide sufficient disclosure of the superabsorbent compositions that would motivate one of ordinary skill to employ to form the claimed coating from a substantially homogeneous coating mixture including the combination of polymer precursor aqueous solution and non-particulate viscosity modifier in solution or dispersion. Further Guersen is directed to an water-in-oil emulsion of low viscosity to size aramid yarns and therefore is not directed to the same type of coating nor the same composition of the resulting coating.

Thus, Applicants respectfully submit that neither Arroyo nor the combination of Guersen and Barch teach or suggest all of the claim limitations recited in Claim 50. Applicants therefore respectfully request the rejection of Claim 50 pursuant 35 U.S.C. § 103(a) in view of the cited prior art be withdrawn.

Claims 52-60 depend from Claim 50 and are patentable over the cited prior art for at least the reasons given above. Applicants therefore respectfully request withdrawal of the rejections of such claims pursuant 35 U.S.C. § 103(a).

Based upon the foregoing amendments and discussion, the present application is believed to be in condition for allowance. Should the Examiner have any questions concerning this response, he is invited to telephone the undersigned.

Respectfully submitted,



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